

ABSTRACT

A galvanized steel sheet is manufactured by preparing a hot-dip galvanized steel sheet, alloying the steel sheet, and controlling time and temperature for alloying thereof depending on Si and Al contents. The hot-dip galvanized steel sheet contains 0.05 to 0.30% C, 0.01 to 2.0% Si, 0.08 to 3.0% Mn, 0.003 to 0.1% P, 0 to 0.07% S, 0.01 to 2.5% Al, 0 to 0.007% N, by mass, and the balance being Fe and inevitable impurities. Alloying time and temperature are controlled by the formula $[Si + Al \geq 1.5 \times 10^{-7} \times t^{0.75} \times (T - 465)^3 + 0.117]$, where t is the total time (sec) of holding the sheet at 465°C or more on alloying the coating layer thereon, and T is the average temperature (°C) of the sheet during the total time t (sec) of holding the steel sheet at 465°C or more on alloying the coating layer thereon.